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| 09/673,598      | 10/18/2000  | Jonathan Ephriam David Hurwitz | 1749/270 (20        | 1926             |

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EXAMINER

AGGARWAL, YOGESH K

ART UNIT

PAPER NUMBER

2615

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/673,598

Applicant(s)

HURWITZ ET AL.

Examiner

Yogesh K Aggarwal

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10/18/2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Objections***

1. Claim1 is objected to because of the following informalities:

- i. Line 7 claim 1: “detects the said” should be either “the” or “said” and not both.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 1. Claims1, 2,5,7,8-10,12,13 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukui (US Patent # 5,422,670).

[Claim 1]

A method of operating a solid state image sensor (figure 2 # 3) for the acquisition of an image presented to the sensor in response to an asynchronous stimulus (position sensor detector 4 generates a low-level trigger pulse in response to detection of object 2, figure 2), wherein said image sensor is operated in conjunction with at least one detector (figure 2 # 4) which, directly or indirectly, detects the said asynchronous stimulus (position sensor detector 4 generates a low-level trigger pulse in response to detection of object 2, figure 2), said image sensor is regularly reset so as to commence integration from a reset state of the sensor each time a predetermined period has elapsed (Fukui col. 1 lines 27-31, Figure 1c discloses reset pulses occurring regularly and the charge storage time commencing after a predetermined time), and an output from said at least one detector prior to each reset determines whether that reset is inhibited or not in that if

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said output represents the detection of said asynchronous stimulus then said reset is inhibited reads on Fukui (col. 1 lines 49-68, col. 2 lines 1-2 figure 2) [In figure 2, position sensor detector 4 outputs a low-level trigger pulse upon detection of the object 2 to the shutter pulse generator 5 which generates a low-level shutter pulse to the CCD control circuit 6 which inhibits the reset pulses to the CCD image sensor 3].

[Claim 2]

A method according to claim 1 wherein the detector (figure 2 # 4) outputs a detection signal when said asynchronous stimulus is detected (position sensor detector 4 generates a low-level trigger pulse in response to detection of object 2, figure 2), and said detection signal is used to trigger a reset inhibition control signal for inhibiting a subsequent reset signal to the sensor reads on Fukui (col. 1 lines 51-68, col. 2 lines 1-2 figure 2) [In figure 2, position sensor detector 4 outputs a low-level trigger pulse upon detection of the object 2 to the shutter pulse generator 5 which generates a low-level shutter pulse to the CCD control circuit 6 which inhibits the reset pulses to the CCD image sensor 7].

[Claim 5]

A method according to claim 1 wherein the asynchronous stimulus is the opening of a camera shutter reads on Fukui (col. 1 lines 49-54)[“ Stimulus” outputs low-level trigger pulse to initiate shutter pulse for image sensor].

[Claim 7]

Claim 7 is an apparatus claim corresponding to method claim 1 and 2. Therefore it has been analyzed and rejected based on method claim 1 and 2.

[Claim 8]

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Image capture control apparatus according to claim 7, wherein said at least one detector means (4) and said reset inhibition control signal output means (12) are provided in a single device (Fukui, col. 8 lines 12-16, figure 2)[The invention resides in a solid-state imaging device (figure 2) implies that all the components are contained in a single solid-state imaging device]

[Claim 9]

Image capture control apparatus according to claim 7, wherein said reset inhibition control signal output means (12) and said reset signal generating means (11) are provided together in a single device (Fukui, col. 8 lines 12-16 figure 2)[The invention resides in a solid-state imaging device (figure 2) implies that all the components are contained in a single solid-state imaging device]

[Claim 10]

Image capture control apparatus according to claim 7, wherein the detector is formed and arranged for detecting the opening of a camera shutter (Fukui col. 1 lines 41-45).

[Claim 12]

A camera having a solid state image sensor, wherein is provided image capture control apparatus according to claim 7 (Fukui col. 1 lines 8-11. Fukui teaches that the solid state-imaging device, which comprises of the image capture control apparatus is employed in a camera].

[Claim 13]

Claim 13 is an apparatus claim corresponding to method claim 1. Therefore it has been analyzed and rejected based on method claim 1.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3,4,14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui (US Patent # 5,422,670) in view of Guidash (US Patent # 6,218,656).

[Claim 3]

Fukui teaches the following limitations:

A method of using a solid state image sensor (figure 2, # 3) comprising an array of sensing cells (Fukui, col. 2 lines 49-51), for the acquisition of an image presented to the sensor in response to an asynchronous stimulus (figure 2 # 4, col. 1 lines 49-53), wherein said image sensor is regularly reset so as to commence integrating from a reset state of the sensor each time a predetermined period has elapsed (Fukui, col. 1 lines 27-31, Figure 1c discloses reset pulses occurring regularly and the charge storage time commencing after a predetermined time) and the value of this read is used to determine whether a subsequent reset signal to the sensor should be inhibited or not in that if said value indicates the occurrence of an asynchronous stimulus then said subsequent reset signal is inhibited (Fukui, col. 5 lines 29-40). Fukui fails to teach a portion of the array of the sensor (figure 2 # 3) is read prior to each said reset. However these limitations are well known in the art as disclosed in Guidash (col. 6 lines 30-37).

Therefore taking the combined teachings of Fukui and Guidash as a whole, it would have been obvious to one skilled in the art to modify the image sensor of Fukui to that of an active pixel

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sensor (APS) of Guidash such that a portion of the array of the sensor is read prior to each said reset (R) as taught in Guidash. By doing so a photodiode active pixel sensor with true correlated double sampling using only 3 transistors results in a high fill factor and low temporal noise as evidenced in Guidash (col. 2 lines 42-47).

[Claim 4]

A method according to claim 3, wherein said portion of the array read prior to each reset (R) comprises a plurality of sensing cells which are spatially distributed throughout the array of sensing cells (Guidash discloses in figure 4 the layout of the pixels spatially distributed throughout the array of the sensing cells).

[Claim 14]

Claim 14 is identical to claim 5. Therefore it has been analyzed and rejected based on claim 5.

4. Claims 6,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui (US Patent # 5,422,670) in view of Dempsey (US Patent # 5,422,716).

[Claim 6]

Fukui teaches the limitations of claim 1 but fails to teach an asynchronous stimulus, which is a flash of light from a lighting strobe. However this limitation is well known in the art as evidenced by Dempsey (col. 3 lines 62-68, col. 4 lines 1-2, figure 1)[Fukui teaches “stimulus” as generation of trigger pulse signal in response to the flash of light from a lighting strobe. Dempsey teaches strobe light intensity as stimulus to generate data reading].

Therefore taking the combined teachings of Fukui and Dempsey as a whole, it would have been obvious to one skilled in the art to modify “stimulus” in Fukui to that of Dempsey, which is a flash of light from a lighting strobe. By doing so several times the average value of light intensity

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from the strobe can be determined and the average value is more appropriate to determine the effective intensity and thus the ability of the strobe light to warn other aircraft on the airplane's position as evidenced in Dempsey (col. 4 lines 19-22).

[Claim 11]

Claim 11 is identical to claim 6. Therefore it has been analyzed and rejected based on claim 6.

5. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui (US Patent # 5,422,670) in view of Guidash (US Patent # 6,218,656) in further view of Dempsey (US Patent # 5,422,716).

[Claim 15]

Fukui in view of Guidash teaches the limitations of claim 3 but fails to teach an asynchronous stimulus, which is a flash of light from a lighting strobe. However this limitation is well known in the art as evidenced by Dempsey (col. 3 lines 62-68, col. 4 lines 1-2, figure 1)[Fukui teaches "stimulus" as generation of trigger pulse signal in response to the flash of light from a lighting strobe. Dempsey teaches strobe light intensity as stimulus to generate data reading].

Therefore taking the combined teachings of Fukui, Dempsey and Guidash as a whole, it would have been obvious to one skilled in the art to modify "stimulus" in Fukui to that of Dempsey, which is a flash of light from a lighting strobe. By doing so several times the average value of light intensity from the strobe can be determined and the average value is more appropriate to determine the effective intensity and thus the ability of the strobe light to warn other aircraft on the airplane's position as evidenced in Dempsey (col. 4 lines 19-22, lines 26-29).



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*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K Aggarwal whose telephone number is (703) 305-0346. The examiner can normally be reached on M-F 9:00AM-5: 30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary examiner, Vu Le can be reached (703) 308-6613. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

YKA  
December 8, 2003

  
YU LE  
PRIMARY EXAMINER